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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/721,547

11/26/2003

Shigeru Hosoe

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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT

PAPER NUMBER

1732

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/18/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/721,547	<b>Applicant(s)</b> HOSOE, SHIGERU	
	<b>Examiner</b> Jeff Wollschlager	<b>Art Unit</b> 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 January 2007.  
 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.  
     4a) Of the above claim(s) 2, 11-14, 20-22 and 29-31 is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1, 3-10, 15-19 and 23-28 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☒ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of Group I, Species B and Species X, in the reply filed on January 25, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 2, 11-14, 20-22 and 29-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Claims 1, 3-10, 15-19 and 23-28 are currently under examination.

### ***Information Disclosure Statement***

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Drawings***

Figure 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled

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"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The disclosure is objected to because of the following informalities: The disclosure contains numerous grammatical and spelling errors. For example, (citations to US 2004/0113299) "suing" [0002], "generate-processed" [0003]; "several-th" [0015]; "there is no such an idea" [0019]; "rleasing" [0021]; "written in item 1" [0037]; "cconstituting" [0037]; "written in an item 2" [0054]. The specification should be carefully reviewed to correct the numerous errors. Appropriate correction is required.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3-10, 15-19 and 23-28 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 41 of U.S. Patent No. 7,178,433 in view of Umetani et al. (US 5,171,348). Although the conflicting claims are not identical, they are not patentably distinct from each other.

Claim 41 of US Patent 7,178,433 claims a process of producing a die to form an optical element with a diamond cutting tool.

Regarding claims 1, 3-10, 15-19 and 23-28, Claim 41 of the '433 patent discloses the process as set forth above, but does not specify a specific material required to form the die. However, Umetani et al. disclose a die for molding optical elements made of silicon carbide (col. 2, lines 16-20). Therefore it would have been obvious to one having ordinary skill to have practiced the method claimed in claim 41 of the '433 patent and to have cut silicon carbide as suggested by Umetani et al to produce the curved transfer surface.

Claims 1, 3-10, 15-19 and 23-28 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 7,060,175 in view of Umetani et al. (US 5,171,348). Although the conflicting claims are not identical, they are not patentably distinct from each other.

Claim 1 of US Patent 7,060,175 claims a process of cutting a base member to form a base optical surface having a predetermined pattern.

Regarding claims 1, 3-10, 15-19 and 23-28, Claim 1 of the '175 patent discloses the process as set forth above, but does not specify a specific material required to form the die. However, Umetani et al. disclose a die for molding optical elements made of silicon carbide (col. 2, lines 16-20). Therefore it would have been obvious to one having ordinary skill to have practiced the method claimed in claim 1 of the '175 patent and to have formed the base material from silicon carbide as suggested by Umetani et al to produce the curved transfer surface.

Claims 1, 3-10, 15-19 and 23-28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-35 of copending Application No. 11/290,499. Although the claims are not identical, they are not patentably distinct from each other because the instant claims are merely broader versions of the copending claims. Therefore, they are not patentably distinct therefrom, since they are effectively anticipated by the copending claims. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 112***

Claims 1, 3-10, 15-19 and 23-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention. Regarding claim 1 the limiting effect of a "critical cutting-in depth of 5 um or less for the material" is unclear. It is unclear whether this refers to a specific physical property of the material or the minimum or maximum depth the material is to be cut. The examiner further notes that the recited hardness Rockwell HRA 80 and Vickers Hv 1000 suggest these are equivalent values merely recited from different measurement scales. However, it is noted that a Rockwell hardness HRA 80 is equal to a Vickers Hv hardness of about 647, not 1000. As such, the intended scope of the limitation is unclear. Finally, the limiting effect of the "transferring surface" is unclear. It is unclear whether this layer is a layer that is in direct contact with the material being molded or whether it merely has an impact on the roughness and shape of the die surface. Appropriate clarification and/or amendment to the claim, without the introduction of new matter, is required.

As to claim 3, "that a cutting edge" is unclear as to its limiting effect. Also, "the cutting tool" lacks antecedent basis. Further, the language of claim 3 as a whole is unclear and cumbersome. Appropriate clarification and correction is required.

As to claim 4, "that a cutting edge" is unclear as to its limiting effect. Further, the limiting effect of +/- 15 degrees is unclear. It is unclear whether the limitation refers to the angle between the cutting tool and the material being cut or whether the limitation refers to the stability of the cutting tool.

As to claim 7, "the cutting edge of the cutting tool" lacks antecedent basis.

As to claims 9 and 10, the claims as a whole are unclear and cumbersome. It is unclear how the structural relationship of the different faces are required to be

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positioned relative to each other, the cutting tool, the cutting edge, and the material being cut.

As to claim 15, the limiting effect of a "rake angle within a range of +/- 15 degrees" is unclear.

As to claim 16, the limiting effect of "on a plane including the cutting point and the optical axis" is unclear. Further, "the optical axis" lacks antecedent basis.

As to claim 17, the limiting effect of "an angle of a normal line of 30 degrees or more" is unclear.

As to claim 18, the limiting effect of "control resolving power...for a shaft to hold one of the cutting tool and the transferring surface" is unclear.

As to claim 19, the limiting effect of "has a moving section has 3-axes or more" is unclear.

As to claim 25, it is noted that "hyper hard" is a relative term open to a broad reasonable interpretation. The scope of the claim is unclear. It is further noted that claim 1, provides specific hardness whereas the scope of claim 25 does not appear to further limit the claim from which it depends.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one-year prior to the date of application for patent in the United States.



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Claims 1, 5, 7 and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Umetani et al. (US 5,171,348).

Regarding claims 1 and 27, Umetani et al. teach a method of forming a die for press-molding an optical element wherein the die comprises a base material (21) made of silicon carbide that is roughly machined/cut and a layer of Ni-P or Ni-B that is cut into a desired shape. The hardness of the Ni-P and Ni-B material ranges from a Vickers Hv of 500-1000 (Table 2; col. 1, lines 15-48; col. 2, lines 8-21; col. 3, lines 1-24; col. 4, lines 6-55).

As to claim 5, Umetani et al. disclose an aspherical surface (col. 1, lines 15-20)

As to claim 7, Umetani et al. disclose a diamond tool used for cutting/machining (col. 1, lines 46-49).

As to claim 24, Umetani et al. disclose forming a glass optical element (col. 1, lines 15-20).

As to claim 25, the material employed is "hyper hard".

As to claim 26, the base material cut is silicon carbide (col. 2, lines 6-20).

Claims 1, 4 and 24-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Uno et al. (US 5,008,002).

Regarding claims 1 and 27-28, Uno et al. disclose a method of producing a mold for obtaining glass articles comprising cutting a base mold of silicon carbide (SiC), for example, (Figure 3; col. 1, lines 6-33) and providing a CVD deposited SiC (col. 2, lines

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52-67) or an i-carbon film to contact the glass for molding (col. 4, lines 34-42; col. 5, lines 44-50).

As to claim 4, Uno et al. disclose producing the mold to the desired shape. Intrinsically this requires control within a +/- 15-degree window, as the scope of claim is currently understood (col. 2, lines 53-66; col. 4, lines 34-41).

As to claim 24, Uno et al. disclose forming a glass lens (Abstract)

As to claim 25, the material employed is "hyper hard".

As to claim 26, the material employed is silicon carbide (col. 2, lines 52-67)

Claims 1, 5-7, 18 and 23-28 are rejected <sup>under 35 USC 102(a)</sup> over Applicant's Admitted Prior Art (US 2004/0113299).

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Regarding claims 1 and 25, Applicant's admitted prior art (AAPA) discloses that it is known in the art to employ a cutting tool or grinding process to prepare the surface of molds with the recited hardness and structure (Table 1; paragraphs [0002-0010; 0019 and 0025-0030]). The examiner notes that the specification discloses that a "cutting" process is known [paragraphs [0025-0030]). The examiner also notes that the grinding process disclosed is reasonably interpreted as cutting the surface of the hard material and that the specification refers to cutting edges within the grinding stone containing diamond abrasive grains (paragraphs [0003 and 0028]).

As to claim 5, aspherical surfaces are admitted (paragraph [0010]).

As to claim 6, diameters of 5 mm are disclosed (paragraph [0030]).

As to claim 7, cutting equipment with diamonds is admitted (paragraph [0003]).

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As to claim 18, the processing equipment limitations are admitted (paragraph [0027]).

As to claims 23 and 24, optical elements formed of plastic or glass are admitted (paragraph [0002]).

As to claims 26-28, silicon carbide is admitted (Table I).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-7, 18 and 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of Sata et al. (U.S. Patent 5,887,048).

Regarding claims 1 and 25, Applicant's admitted prior art (AAPA) discloses that it is known in the art to employ a cutting tool or grinding process to prepare the surface of molds with the recited hardness and structure (Table 1; paragraphs [0002-0010; 0019 and 0025-0030]). The examiner notes that the specification discloses that a "cutting" process is known [paragraphs [0025-0030]]. The examiner also notes that the grinding process disclosed is reasonably interpreted as cutting the surface of the hard material and that the specification refers to cutting edges within the grinding stone containing diamond abrasive grains (paragraphs [0003 and 0028]). Alternatively, Sata et al.

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disclose the art recognized equivalence of processing SiC materials by cutting or grinding the surfaces (col. 2, lines 24-38).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to either "cut" or "grind" SiC surfaces since Sata et al. suggest they are art recognized equivalent means of processing precision SiC surfaces.

As to claim 5, aspherical surfaces are admitted (paragraph [0010]).

As to claim 6, diameters of 5 mm are disclosed (paragraph [0030]).

As to claim 7, cutting equipment with diamonds is admitted (paragraph [0003]).

As to claim 18, the processing equipment limitations are admitted (paragraph [0027]).

As to claims 23 and 24, optical elements formed of plastic or glass is admitted (paragraph [0002]).

As to claims 26-28, silicon carbide is admitted (Table I).

Claims 3, 4, 8-10 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umetani et al. (U.S. 5,171,348), as applied to claims 1, 5, 7 and 24-26 above, and further in view of Mizutani et al. (US 6,758,640) and/or Yoshihiro et al. (U.S. 6,913,424).

As claims 3 and 4, Umetani et al. teach the method of claim 1 as set forth above, but do not expressly provide details of the cutting method. However, Mizutani et al. (Abstract) and Yoshihiro et al (col. 3, lines 5-8; col. 4, lines 34-52) each show methods

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of employing diamond cutting tools by controlling the relative position of the material being cut and the cutting tool.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the cutting method disclosed by Mizutani et al. or Yoshihiro et al. to cut the die produced by Umetani et al. for the purpose of improving the quality and productivity of the cutting process, as is routinely practiced in the art.

As to claims 8-10 and 15-17, Yoshiro et al. disclose controlling the cutting relative to the orientation of the diamond and controlling the rake angle (col. 3, lines 5-8; col. 4, lines 35-47).

As to claims 18 and 19, both the machines disclosed by Yoshiro et al. (Abstract) and Mizutani et al. (Abstract) are high precision, adjustable, equipment.

### ***Conclusion***

All claims are rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent Documents: 7,009,774; 6,869,549; 2003/0034574; 7,140,812; 6,597,510; 5,078,551.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager  
Examiner  
Art Unit 1732

April 13, 2007

  
CHRISTINA JOHNSON  
SUPERVISORY PATENT EXAMINER

4/16/07